Feb. 11, 1941. B. E. SEEMEL 2,231,642

COIN MACHINERY

Original Filed July 2, 1934 2 Sheets-Sheet 1

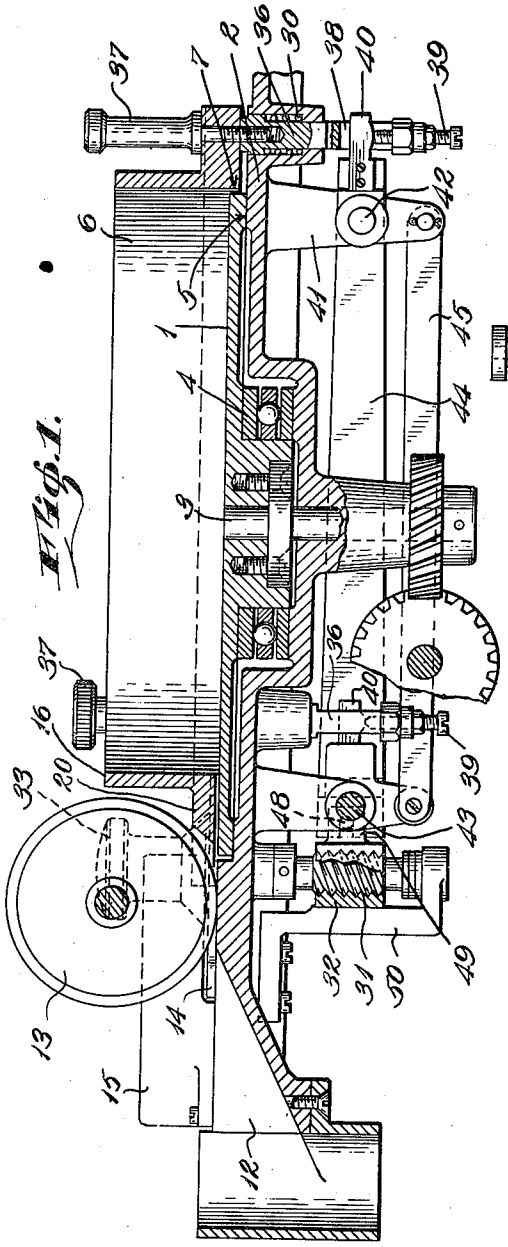


Fig. 1.

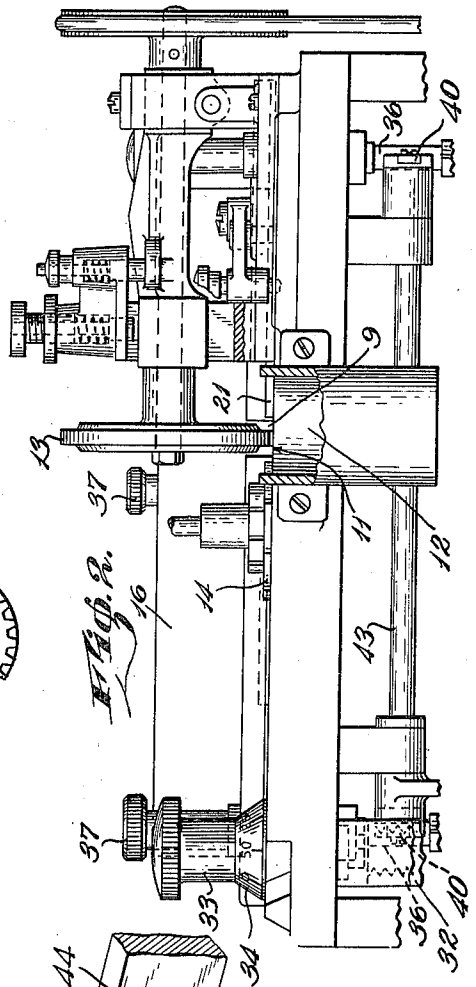


Fig. 2.

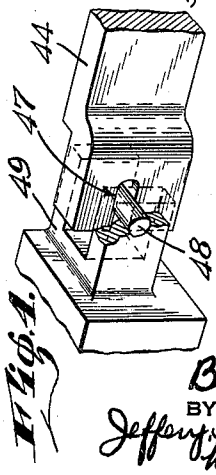


Fig. 4.

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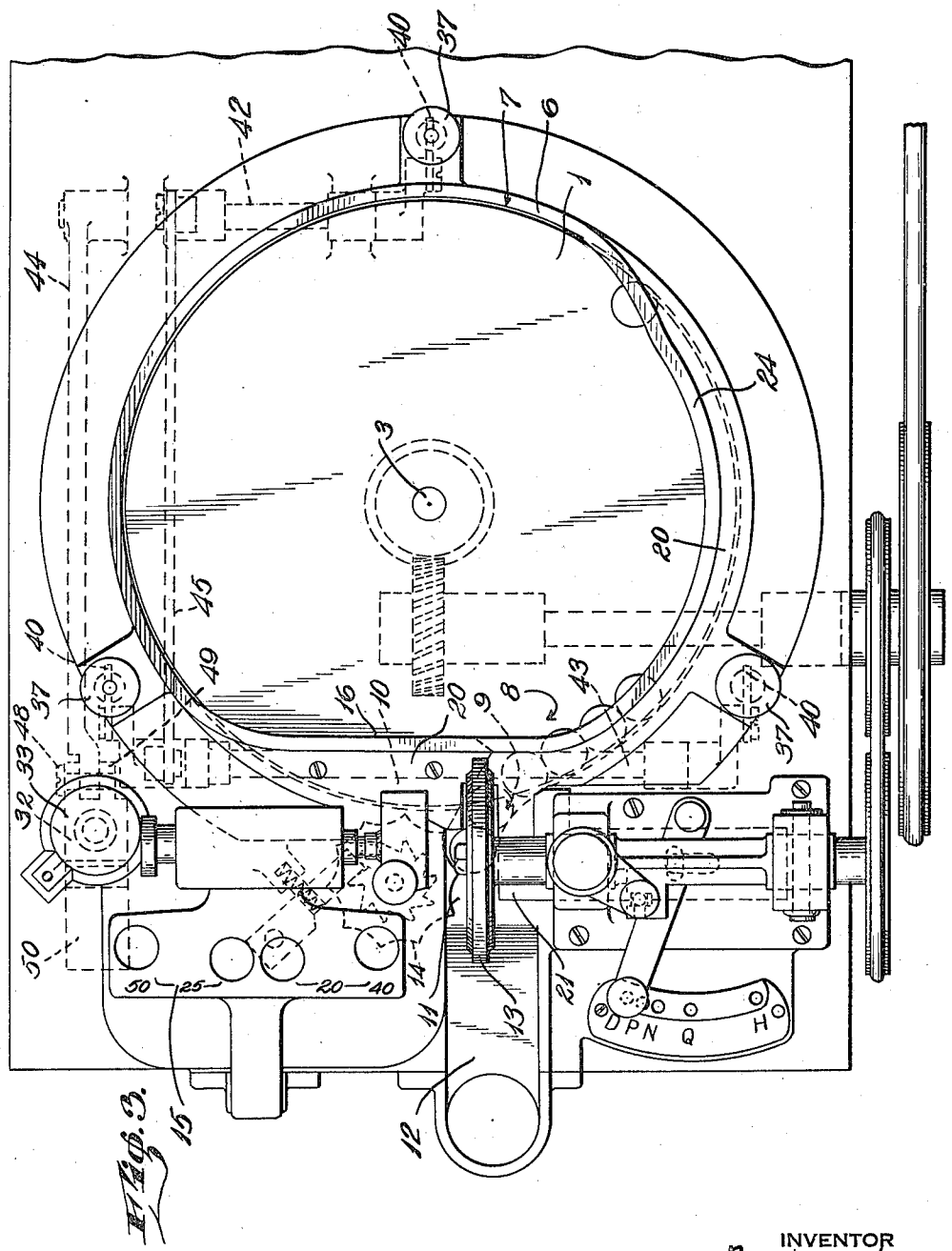


Fig. 3.

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UNITED STATES PATENT OFFICE

2,231,642

COIN MACHINERY

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Original application July 2, 1934, Serial No. 733,427. Divided and this application January 10, 1939, Serial No. 250,120

6 Claims. (Cl. 133—8)

My invention relates to coin handling machinery, and especially to coin counters, of the centrifugal disc type. Generally speaking, it provides an improved mechanism for supporting and changing the position of stationary walls associated with the centrifugal disc or table. It is applicable to machines handling coin-like tokens and other articles more or less coin-like, as well as to machines handling coins, and all such articles are included in the term "coin" as that term is used hereinafter.

This application is a division of my co-pending application Ser. No. 733,427 filed July 2, 1934.

The accompanying drawings illustrate a centrifugal coin counter with the best form of my invention of which I am now aware applied thereto. Fig. 1 is a vertical section of the counter, substantially on its center line. Fig. 2 is an elevation of the discharge end of the machine. Fig. 3 is a plan view of the machine. Fig. 4 is a detail of construction.

The rotary table or centrifugal disc 1 is supported substantially horizontally by the machine frame 2; conveniently it is rotated by a vertical center shaft 3 and suitable driving gearing, and is carried by a thrust bearing 4 surrounding the shaft; the outer edge 5 of the disc or table may, say, rest lightly on the machine frame 2 for steadying purposes. A stationary wall member 6 prevents the escape of coins from the disc except at a discharge port; immediately outside and close to the edge of the disc, this wall encircles and rises substantially vertically above the top surface of the disc a distance intended to be a little greater than the thickness of one of the coins being handled at the moment, except that in the region 8 a port 9 is provided in the wall for the discharge of coins from the disc; for a considerable part of the disc circumference (Fig. 3) this wall extends still higher (Fig. 1), and at least adjacent the port 9 it extends inwardly to provide a horizontal wall 20 substantially parallel with and intended to be spaced above the top of the disc 1 a distance only a little greater than the thickness of one of the coins being handled at the moment. The higher extension of the wall member 6 is continued along the inner edge of the horizontal wall 20 as indicated at 16 and 24 (Figs. 1 and 3). A plate or guide 10, underneath a part of the overlying wall 20 at and back of the port 9 (Fig. 3) and above but close to the top of the disc 1, has a forward edge shaped to direct coins from the disc into the discharge port 9. As the centrifugal action of the disc discharges the coins seriatim through the passageway 9, the coins slide on the frame for a short distance at 11 and thence into the receptacle provided to receive them, or into a chute 12 in the present instance. At 11 the coins pass, seriatim, underneath a driven wheel 13 and across the edge of a notched wheel 14 which forms a part of the counting mechanism 15; under the driving force of the wheel 13, or the force with which the coins are thrown from the rotary table supplemented by the driving force of this wheel, each coin is forced to turn the notched wheel 14 one notch and thereby actuate the counting mechanism 15. Counting mechanism suitable for the purpose and likewise driving wheels such as that at 13 and the action of the coins on a notched wheel like 14 are well known so that no further description of these parts is necessary. Customarily a sliding plate 21 is provided to cause each coin to enter a notch in the notched wheel 14, and this plate is slidingly mounted so that it can be moved toward and from the notched wheel to adapt it to different sizes of coins. Mechanism for such adjustment is illustrated, and also for driving the wheel 13, and also a mounting of the driving wheel 13 that permits it to rise as the thicker coins pass below it and which prevents the driving wheel from striking the floor of the passage 11 when there is no coin beneath the wheel. Such mechanisms and mountings are well known, are fully described elsewhere, and form no part of the present invention; accordingly, it is unnecessary to describe them here in detail. In operation, in brief, coins are cast on to the rotary table or disc 1, and by the rotary action of this table or disc the coins which lie flat on the table are worked centrifugally toward the outer edge of the table against the wall 6 and into the runway underneath the overlying wall 20, and thence through the discharge port 9, whence they are counted and cast down the chute 12 by the counting mechanism 14, 15 and the driven wheel 13.

A function of the overlying wall 20 is to displace any coin that may lie on top of another as the coins approach the discharge port 9. Another is to assure the coins lying flat against the top surface of the disc 1 as they approach the escape port. A third is to prevent the passage of bent coins. It will be observed accordingly (as is well known) that an overlying wall such as 20 should be adjustable vertically with respect to the top surface of the disc 1 to adapt the machine for use with coins of different thicknesses,

and that the spacing of this wall from the top of the rotary disc should be quite accurate in each instance, and that substantial parallelism between the face of the rotary table or disc and the under surface of the overlying wall 20 should be maintained in all the positions of the overlying wall. My invention provides an improved mechanism particularly suited for raising and lowering overlying walls such as 20, and additionally mechanism adapted to raise and lower any stationary wall structure or part, of machines of the type indicated which need to be adjusted in position under similar conditions, regardless of the specific nature of the wall structure or part thereof. My invention therefore is not altogether limited to the machine so far described.

To the ends indicated, I employ a lever system that is operable as a whole from one point but which preferably engages the adjustable wall structure at a plurality of points; engagement at three points, usually substantially equally spaced, is sufficient. Preferably too the wall structure is supported on springs and the lever system acts to depress the wall structure against the springs; this arrangement positively locks the wall structure against upward movement, thus, for example, in connection with an overlying wall 20, positively preventing the forceful entrance of a bent coin into the runway. Preferably also the lever system is actuated by a thread and nut mechanism, the thread, say, being drivable by the machine operator through a suitable hand hold which may be indexed to indicate its proper settings for various coins.

The preferred form of my lever mechanism is illustrated. In brief, the wall structure, here the whole of the wall member 6, rests on three evenly spaced posts 36 which are slidable in the machine frame 2 and are supported each by one of the springs 30 (Fig. 1); a threaded bolt 37 serves to tie the wall member to each of these posts 36 and at the same time permit its ready release from the posts. At their lower ends, each post is recessed to form a yoke 38 into which a vertical bolt 39 extends for preliminary adjustment purposes; one end 40 of an arm or lever extends into engagement with the bolt 39 at each of these posts. Each of these arms or levers is pivoted to a bracket 41 mounted on the machine frame, by means of rock shafts 42 and 43 to which, in the present instance, these levers are keyed. To the rock shaft 42 which is at the opposite side of the machine from the thread-and-nut mechanism 31—32, and accordingly quite remote from the latter, is keyed an arm 44, the opposite end of which is provided with a slot 47 (see particularly Fig. 4) straddling a pin 48 carried in an extension 49 from the nut 32. The nut 32 can rise and fall as its thread member 31 is turned, but is held against rotation by bearing against a supporting bracket 50 as shown in Figs. 1 and 3. The threaded member 31 is provided with a hand hold 33 by which the operator can turn it, and bears the index marking 34 to indicate the proper settings for the various coins. Accordingly, the raising and lowering of the nut 32 by its threaded member 31 serves to swing the arm 44 and thereby swing the shaft 42; a link 45 serves to connect the two shafts 42 and 43, so that one swings the other to an equal degree. By connecting the thread-and-nut mechanism to the more remote shaft 42, a finer and more accurate adjustment is obtainable than where the connection is made to the nearer shaft 43. From the foregoing it will be observed that by raising the nut 32 by turning the hand hold 33, all the lever arms 40 are depressed, and thereby the three posts 36 are depressed equal distances and the wall structure, including the overlying wall 20, is carried down in parallelism; turning of the thread 31 in the opposite direction permits the wall structure to rise.

It will be understood that my invention is not limited to the details of construction and operation illustrated and described above, except as appears hereinafter in the claims.

I claim:

1. In a coin machine having a frame, a rotating disc to feed the coins and a wall cooperating with said disc and adjustable in position to adapt the machine to coins of different sizes, at least three arms each fulcrumed on the frame and respectively operatively connected to the wall at distributed points around the axis of said disc to establish the angular position of the wall with respect to a surface of said disc, and a single mechanism connected to all said arms to turn the same to change the position of the wall.

2. The combination with the subject matter of claim 1, of at least three springs supported by said frame and supporting said wall at points distributed around the axis of said disc, said arms acting to hold the wall against movement by said springs.

3. The subject matter of claim 1, characterized by the fact that said mechanism to turn said arms includes a further arm, connected to the aforesaid arms, and a thread-and-nut mechanism, connected to said further arm, to turn the latter and thereby turn the first mentioned arms as a group.

4. In a coin machine having a frame, a rotating disc to feed the coins and a wall cooperating with said disc and adjustable in position relative to the disc to adapt the machine to coins of different sizes, a lever system to adjust the position of the said wall, said system being fulcrumed to said frame and including a power arm and at least three arms of substantially equal effective lengths respectively operatively connected to the wall at distributed points around the axis of said disc, and means to actuate said lever system, said means engaging said power arm at a point thereon that is spaced from its fulcrum a distance that is a plurality of times greater than the effective length of one of the arms that is connected to the wall.

5. In a coin machine having a frame, a rotating disc to feed coins and a wall cooperating with said disc and adjustable in position relative to the disc to adapt the machine to coins of different sizes, at least three posts distributed around the axis of said disc and slidably mounted on said frame and connected to said wall, springs means supported by the frame and supporting said wall at substantially the points of connection of the wall to said posts, a lever arm operatively connected to each of said posts and fulcrumed to the frame at a point thereon adjacent the respective posts, and an operating lever arm also fulcrumed to the frame, connected to all the first mentioned lever arms to operate the latter simultaneously, and having an effective length a plurality of times greater than the effective length of any one of the first mentioned lever arms.

6. In a coin machine having a rotating disc to feed coins centrifugally and a wall having a portion adjacent the disc located at a higher level than the upper surface of the disc to cooperate with the disc to adapt the machine to dispense coins, said wall being adjustable to move parallel

to the axis of said disc, at least three springs, distributed around the axis of the disc, supporting said wall, a shaft at substantially one side of the machine, an arm connected to said shaft and also operatively connected to said wall adjacent the shaft, at least two other arms at other points distributed around the axis of the disc and operatively connected to the wall substantially at said other points, said arms holding the wall against the thrust of said springs, means connecting said other arms to said shaft, an operating arm connected to said shaft and extending to the other side of the machine from said shaft, and a nut-and-thread mechanism substantially at, and connected to said operating arm substantially at, said other side of the machine for shifting said arm whereby coins of different thicknesses may be dispensed by adjusting said wall relative to said disc.

BRUNO E. SEEMEL.